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ABSTRACT

The inventory, consisting of 100 multiple-choice items, was developed to assess four areas of a student's knowledge of art and art education: art materials and processes; the history of art; art theory and criticism; and art education theories and practices. Administration takes thirty minutes, standard IBM answer sheets are used, and either hand or machine scoring is acceptable. (AG)

THE KERN ART EDUCATION INFORMATION INVENTORY: A PROGRESS REPORT

EVAN J. KERN

The Kern Art Education Information Inventory has been developed to provide a rough measurement of a student's knowledge about art and art education. The inventory consists of one hundred multiple-choice items. The items are differentially distributed over four areas of information: (1) art materials and processes, (2) history of art, (3) art theory and criticism, and (4) art education theories and practices. The inventory takes thirty minutes to administer, uses standard IBM answer sheets, and may be scored either by hand or machine.

The inventory was developed specifically for use in a program of psychological testing and vocational guidance established by the Division of Art Education at Ohio State University, Winter Quarter, 1970. This particular program has two major goals:

1. To make available to students certain kinds of information which might be helpful to them in assessing school and career goals.
2. To collect test information which, on the basis of followup studies, might be useful in predicting students' future success in Art Education.

The primary purpose of the first part of this testing program was to offer the students an opportunity to rethink their school and career goals. This was to be done, in part, through the use of standardized psychological instruments. By reviewing the test results, comparing

them to normative data, and discussing them with a counseling psychologist, it was hoped the students would be better able to focus on their goals. For some, this would mean transferring from Art Education and seeking more suitable areas of study. For others, this would mean a reinforcement of existing plans and activities.

The second part of the testing program involved planning for the future. In the event that a more rigorous selection program becomes necessary in Art Education, background information on past students must be available. Apart from general intellectual and academic abilities, it has been shown that tests of motivation, interest and personality often can add significantly to academic selection programs. The tests administered to this group represent such a core of information.

The instruments for use in this testing program were:

1. Survey of Study Habits and Attitudes
2. Minnesota Teacher Attitude Inventory
3. Myers-Briggs Type Indicator
4. Rokeach Dogmatism Scale
5. Strong Vocational Interests Blanks
6. Hidden Figures Test - V
7. The Adjective Checklist
8. Test of Behavioral Rigidity

Following a pilot study the last three tests, that is, the Hidden Figures Test V, The Adjective Checklist, and the Test of Behavioral Rigidity were dropped for a variety of reasons. The remaining five instruments provided data on student attitudes, aptitudes, and vocational interests but

did not provide any information relative to the student's knowledge about art and art education theories and practices.

It was deemed important to have some measure of the student's cognitive preparedness for pursuing a program in art education. Consequently, an instrument capable of measuring such preparedness was sought. A survey of the literature yielded only one potential instrument to serve this function--the Eisner Art Information Inventory. Examination of the inventory and related data in addition to correspondence with Eisner led us to conclude that the instrument would not be satisfactory for our purposes. It became apparent that it would be necessary to construct our own instrument to measure this cognitive preparedness.

An opportunity to do preliminary research on a suitable instrument was provided when the author was invited to prepare an assessment device for the National Art Education Association's "Seminar for Improving the Effectiveness of Art Supervision in Art Education." The pilot instrument consisted of two parts which were intended to inventory (1) the factual and (2) the attitudinal status of the seminar participants in the areas of art and art education. The first part consisted of forty multiple-choice questions designed to reveal the participants' knowledge about art and art education practices. The questions represented a random sampling of concepts and facts in such areas as theories of art, art history, and art criticism; artists, critics, and historians; art processes, materials, tools, forms, and styles. There were also questions pertaining to art education, humanities education, and aesthetic education. The second part of the pilot instrument consisted of twenty true-false questions

designed to reveal the participants' attitudes about art education.

The first part of the pilot instrument became the basis for the Kern Art Education Information Inventory. The instrument was expanded to one hundred multiple-choice items retaining the four major areas of information present in the pilot instrument, namely, (1) art materials and processes, (2) history of art, (3) art theory and criticism, and (4) art education theories and practices. Each area was subdivided so that the questions represented a wide spectrum of information. Additionally, the questions were differentially distributed among the major areas and subdivisions in order to reflect the typical distribution of courses for a student majoring in art education. This resulted in a large number of questions in studio related areas and a small number in art theory and criticism.

The construction of the inventory was based on two assumptions. First, it was assumed that an individual student's cognitive preparedness, that is, his knowledge about art, art history, art criticism, and art education theories and practices, would have a direct relationship to his success or lack of success in the art education program. In other words, the more a student knows about these areas the less likelihood there is that he will encounter substantive blocks in pursuing studies in art education.

The second assumption underlying the construction of the inventory was that a student's cognitive preparedness could be measured through the use of a random selection of multiple-choice items differentially distributed through the various art areas already described.

The first version of the inventory was administered to groups of art education majors enrolled in courses at various levels in the Division of Art Education. Results from this study revealed sharp differences in test scores individual students as well as between groups tested--sophomores, juniors, seniors and graduate students. The results of this study are summarized in Table 1.

	Sophomores	Juniors	Seniors	Graduates
Range	6-56	12-51	17-60	37-80
Q1	15	23	28	58
Mean	20	30	38	70
Median	22	30	37	67
Q3	28	34	44	74
s.d.	9.58	9.12	10.33	11.00
r	.688	.805	.580	.851
N	57	35	46	17

Table 1 Preliminary data on the KERN ART EDUCATION INFORMATION INVENTORY

While it seemed apparent that the inventory could discriminate between various levels of cognitive preparedness, there was some question as to the instrument's reliability. The reliability, determined by the split-half method, showed considerable fluctuation ranging from .851 for graduate students to .580 for seniors, with an overall reliability of .698.

Analysis of the inventory indicated that the fluctuating reliability was probably due to three major structural defects in the instruments. The first defect was the fact that only three choices were provided for each item. Such a limited number of choices would encourage guessing and, consequently, could influence reliability. A second defect noted was that

some of the choices provided obviously were not relevant to the item. This too, would tend to promote guessing. The third defect discovered was that the various items appeared in the inventory in approximately the same sequence in which they were devised, that is, the items were not randomly distributed. Instead, the items progressed from simple to complex, easy to difficult.

It was decided to revise the inventory in order to remedy these defects. Each item was analyzed. Some items were eliminated; those remaining were revised and provided with five appropriate choices. New items were developed to take the place of those eliminated. Finally, the one hundred revised items were ordered according to a random distribution table. Sample test items from the revised inventory follow.

1. The Goodenough "Draw a Man Test" measures
   a. creativity
   b. intelligence
   c. perception
   d. maturity
   e. attitudes

2. The central portion of the Roman house is known as the
   a. aula
   b. arcade
   c. apse
   d. architrave
   e. atrium

3. The yarn that forms the shed in weaving is called the
   a. weft
   b. draft
   c. warp
   d. shuttle
   e. heddle

4. The concept "form follows function" can be attributed to
   a. Buckminster Fuller
   b. Le Corbusier
   c. Mies Van der Rohe
   d. Louis Sullivan
   e. Eero Saarinen

The revised inventory was first administered to a group of eleven graduate students in art education during the summer of 1970. The new instrument appeared to have a coefficient of reliability in the neighborhood of .9 (.8985). Encouraged by this preliminary confirmation the inventory was then administered to various groups of art education majors during fall and winter quarters 1970-71. The results from this testing are summarized in Table 2.

	Sophomores	Juniors	Seniors	Graduates
Range	4-43	11-44	15-62	16-78
Q1	14	20	25	31
Median	20	28	30	52
Mean	21.08	27.17	31.74	47.44
Q3	27	32	38	60
s.d.	7.79	7.78	10.70	16.90
r	.777	.712	.792	.874
N	97	36	19	27

Table 2 Data on revised version of the Kern Art Education Information Inventory

In this revised version of the inventory the fluctuating reliability seemed to be curbed. The overall reliability was .779, lower than anticipated but well within limits of acceptability. Further, this lower reliability can be accounted for by the sharp skewing of the test results in the direction of the higher scores. This skewing indicates, of course, that the distribution of correct responses averages less than half of the items in the inventory.

The Kern Art Education Information Inventory has proven to be a useful instrument in the psychological testing and vocational guidance program in the Division of Art Education at Ohio State University. We believe the inventory does in fact measure the cognitive preparedness of

the student for studies in art education. On the basis of the results of this test instrument, we are able to counsel students with low scores for the need for further study in the areas of studio art, art history, and art criticism. Conversely, we feel confident in encouraging students with high scores to continue in the art education sequence of courses. Despite its usefulness in the program of vocational guidance, further refinements of the inventory would be desirable. First, the number of items need to be increased in order to provide a more comprehensive coverage for each of the four areas. This increase in number of items would make it possible to construct a profile of a student's cognitive preparedness in each specific area and, thus, allow more accurate advising. Second, less difficult items need to be developed which would correspond to the kinds of information acquired in introductory courses pertaining to the four major areas. The inclusion of these easier items would correct the skewing of the present inventory. Finally, the instrument needs to be tested and standardized nationally. With such modifications and standardization the Kern Art Education Information Inventory should be a valuable tool in measuring the cognitive preparedness of students in programs of art education at educational institutions across the nation.

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